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OPERATIONAL LOGISTICS IN A MARITIME THEATER OF OPERATIONS:  
THE BUNA OPERATION  
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By

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*"Logistics cannot win a war, but its absence or inadequacy can cause defeat."<sup>1</sup>*

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The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract of

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Operational logistics is critically important in the planning and execution of any operation. Knowledge and proper application of the principles of logistics can assist the logistical planner and operational commander in ensuring the efficient transport and sustainment of troops and supplies. Understanding the relationship of logistic elements is also essential for sound operational planning.

The Buna Operation was a key step in General MacArthur's Southwest Pacific Campaign and serves as an excellent case study of operational logistics in an immature, hostile theater. Many aspects of the Buna Operation are applicable today, as United States military forces are increasingly called upon to serve in remote regions of the world. In an area of operations possessing minimal infrastructure and an inhospitable environment, technology may not provide the expected advantage. Development of an effective logistic network may depend upon economy, improvisation and wise employment of host nation support. Deliberate planning serves as a starting point, yet every logistic plan must be tailored to the area of operations and be sufficiently flexible to meet the needs of the operational commander.

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*"Supply and movement are everything that matters, except fighting courage."<sup>2</sup>*

## INTRODUCTION

Logistics, while certainly not the most glamorous aspect of war preparation or warfighting, is essential for the smooth and successful conduct of an operation or campaign. In any historical account, the logistical problems and successes are interwoven with the details of the operation. Rarely do logistic aspects receive independent, detailed study. Yet, operational logistics is one of the most critical, intricate aspects of the art of warfare. And, although adequate logistic support does not guarantee success, a failed logistic plan can create unacceptable delay and potentially cause ultimate failure of the operation.

Like the art of war itself, logistics has its own set of principles which must be considered in the planning and conduct of any operation. Depending on the location and extent of the operation, as well as other characteristics which combine to give it a particular nature, some principles will take precedence over others. A primary responsibility of the logistic planner and the commander in the theater is to ascertain the nature of the operation and effectively apply the principles of logistics.

As the complexity of warfare has increased, so too has the complexity of logistics. World War II marked the beginning of the first truly worldwide logistic effort supported by the United States--an effort that was both Combined and Joint in its execution. In the Southwest Pacific Campaign, the Buna Operation

allowed the Allies to establish a foothold which was to prove vital in General MacArthur's move to the north, island by island, in pursuit of the Japanese. Close study of the Allied success in Buna highlights the many problems which resulted from this rapidly expanding and unanticipated requirement for logistic support in the Southwest Pacific (SWPAC). As a study in operational logistics, the Buna Operation is rich in examples of the application and mis-application of the logistician's art, while clearly illustrating the delicate balance between technology, improvisation and sheer perseverance. Today, the United States is increasingly called upon to send a technologically sophisticated military to serve in remote areas of the world. Study of an operation such as Buna is valuable to the operational commander and logistical planner in revealing options in implementing a logistic network when technology may provide only a small part of the solution.

## I. THEORETICAL FRAMEWORK

### *Principles of Logistics*

Like the Principles of War, the Principles of Logistics must be integrated into the planning of an operation to allow the best chance for success. Seven principles guide the planning and execution of any logistic effort. *Responsiveness* ensures that the logistic support required by the commander's operational concept is available--at the proper place and time. *Simplicity* ensures the logistical plan is no more complex than necessary.

To achieve simplicity, the supported commander must effectively set priorities and preallocate the supplies and services provided. *Attainability*, sometimes referred to as adequacy, ensures that the commander has the minimum essential supplies and services to begin the operation. Commencing an operation without this minimum support denies the operating forces the resources they will need to seize and retain the initiative, inviting defeat before the operation has even begun. *Sustainability*, the follow-on principle to attainability, provides for continued logistics support to the operating forces once the operation has commenced. Often considered the most challenging problem for the logistician, it is also of paramount concern to the operational commander. If logistic plans fail and operations cannot be sustained, the operating forces are stopped cold.

The final three principles were of primary concern during operations in the SWPAC and are clearly illustrated during the Buna Operation. *Economy*, closely linked to the "economy of force" concept in the principles of war, calls for the most judicious use of limited resources. Because of the "Germany first" priority established during World War II, the SWPAC frequently found itself on the short end of a logistic system that was strained worldwide. The logistician and the operational commander had to practice economy during every stage of operations. *Survivability* was a critical factor in the Buna Operation because the Japanese arrival at Buna preceded that of the Allies. Establishing a logistic network in what was

partially occupied territory greatly increased the complexity of establishing and sustaining logistic support. Finally, flexibility proved decisive during the Buna Operation. This principle encompasses many different aspects, from developing a logistics plan that is adaptable to a variety of different operational concepts to providing for centralized control and decentralized execution of the plan. Flexibility also implies resourcefulness and innovation, both critical to the Allied success at Buna.<sup>3</sup>

#### *Logistic Elements*

If the Principles of Logistics serve as a guide in developing a successful logistic plan, then the Elements of Logistics are the means by which the plan is executed. Logistic elements are those factors which enable the transport of personnel and supplies to the operational theater and their timely distribution. There are four main logistic elements. *Lines of Communication* and the *Theater Transportation Network* are closely linked. Lines of communication include all land, sea and air routes via which logistic support is sent from the continental United States (CONUS) or the original point of embarkation to the theater. In areas such as the SWPAC, the extreme distances of the lines of communication increased the complexity of logistic planning and execution. Once in theater, the theater transportation network takes over, which includes the various ports, airfields, railheads and road networks where

forces and supplies are offloaded and the transshipment points in between. In an immature theater, the adequacy of these terminal points is of primary concern to the logistic planner and the theater commander. An inadequate theater transportation network can mean supplies that may be within sight, but not within reach. The third logistic element is comprised of the units, troops and civilian personnel, which operate the theater transportation network. Without efficient support from these personnel, the logistic system will come to a standstill. Finally, *host-nation support* is critical to the success of any logistic effort outside CONUS. The host nation provides personnel, technical support, and valuable information to assist in the efficient receipt, distribution and sustainment of forces and supplies within the theater.<sup>4</sup>

Identifying the principles and elements of logistics lays the groundwork from which to conduct a more detailed study of the Buna Operation.

## II. LOGISTIC ORGANIZATION

The logistic organization in the SWPAC and in support of the Buna Operation evolved as the war progressed to better support the demands of the theater. The extensive distances involved--approximately 7,500 miles from San Francisco, the main point of embarkation for SWPAC supplies, to Australia and 1,700 miles from Australian bases to New Guinea--intensified the pressure placed on the logistic organization.(fig.1) As Major General Kenney,

Commander Allied Air Forces SWPAC noted when preparing for the Buna Operation, "Our big problem is supply. The Japanese fly their bombers and fighters directly from the factories to the Pacific war zones. But there are no stepping stones between Australia and America as there are between New Guinea and Tokyo. Our fighters have to be crated to Australia."<sup>5</sup> More time was required to ship U.S. supplies to Australia and New Guinea than any other region except the China-Burma-India area and the Persian Gulf.<sup>6</sup> Once supplies arrived in theater, all components --land, sea, and air--of logistic capability were required to support the operation.

Within the SWPAC theater, logistic functions came under the overall command of General Douglas MacArthur, Commander in Chief Allied Forces SWPAC Area. In September 1942, the logistic organization was redefined to improve coordination and distribution of responsibilities as the Allies moved into New Guinea and further north. The U.S. Army Services of Supply (USASOS) in the SWPAC assumed responsibility of all logistic support for advanced bases.(fig.2) Until the area of operation was secure and an advanced base established, the Allied Naval Forces were responsible for getting troops and supplies into the area, and the Ground Task Force Commander was responsible for all needs of the forces once ashore. If the task force left any elements behind as they moved forward, these elements came under the command of the designated base commander.<sup>7</sup> To facilitate rapidly changing requirements as the Allied offensive progressed,

the USASOS decentralized its control as much as possible, allowing each base section commander to manage his own logistics requirements.<sup>8</sup> In a further effort to improve coordination and logistic support among U.S. and Australian forces in New Guinea, the Combined Operational Service Corps (COSC) was established at Port Moresby in October 1942, under the command of Brigadier General Dwight F. Johns. The COSC was tasked with coordinating transport along all Allied lines of communication in New Guinea, as well as construction, hospitalization, and evacuation operations. As the Allies moved into Papua, key branches of COSC were established at Milne Bay and Oro Bay.<sup>9</sup>

### III. THE BUNA OPERATION--THE LOGISTIC SYSTEM

#### *Environment*

The Allies would have been hard pressed to find a more inhospitable place from which to establish a major logistic effort than the Papuan Peninsula. The climate was hot, humid, infested with insects and deluged with frequent heavy rains. In December 1942, when the major effort in the Buna Operation occurred, the temperature frequently reached almost 90 degrees, with over 80 per cent humidity.<sup>10</sup> Supplies coming into Papua were subject to rust and rot. Humidity made standard cardboard cartons useless. The heat and driving rains slowed transportation and impeded construction. But most significantly, the drain on the troops caused by constant battle with the

climate and terrain severely hindered both combat and logistic efforts.

The men at the front in New Guinea were perhaps among the most wretched-looking soldiers ever to wear the American uniform. They were gaunt and thin, with deep black circles under their sunken eyes...covered with tropical sores...clothed in tattered, stained jackets and pants...Often the soles had been sucked off their shoes by the tenacious, stinking mud... Malaria, dengue fever, dysentery...hit man after man.<sup>11</sup>

The Owen Stanley mountain range, stretching the length of the Papuan Peninsula and reaching elevations of 8,000 feet, is the dominant geographical feature. These mountains, consisting of thick jungle forest, are impassable except by primitive native trails unsuited to heavy equipment. The low lying coastal areas are a mixture of swamp, coconut fields, large areas of kunai grass,<sup>12</sup> and creeks which wind to the ocean. Off the coast of Milne Bay and extending northward to Buna, coral reefs hazard any sea going traffic.

Papua's rigorous environment severely restricted logistic support capacity and was often the decisive factor in logistic planning and execution. Before the Buna Operation could succeed, reliable lines of communication and secure staging areas had to be established to get the troops to their objective and to sustain their operations once they had arrived.

#### *Lines of Communication and The Transportation Network*

The Allies used all means available to establish lines of communication and a transportation network in support of the Buna Operation. Allied troops, assisted by Papuan natives, traversed

the treacherous Owen Stanley range; supplies were brought in initially by airdrop and later by transport plane using newly constructed airstrips; small boats traveled around the tip of the peninsula and continued northward, landing their supplies at key points.

By land, the most direct route to Buna was directly from Port Moresby, over the Owen Stanley's, via Kokoda.(fig.3) This was the route used by the Australians until the Americans arrived and established Allied airstrips and ports to support the Buna operation. The trip required 18-28 days--the same distance a mere 35 minutes by plane.<sup>13</sup> In the dense mountain jungle, the Papuan natives were indispensable in transporting supplies and returning the wounded to Port Moresby for treatment. Although only about 2,000 natives were available to support the Allies, they were willing workers whose long-standing positive relationship with the Australians greatly assisted the Allied cause. As the Commander, Allied Land Forces SWPAC, Gen Blamey, noted:

These natives can't be given too much praise. They've carried stretchers through feet-deep mud with the Australian wounded, down slimy defiles, through terrible jungles...almost at the point of exhaustion, but they always kept two men awake at night to take care of the patients, to wash their muddy limbs, to attend to their bandages and to give them their meals. The work of these natives has been astounding. We owe them a lasting debt.<sup>14</sup>

Due to the arduous nature of the Kokoda Trail, an alternate overland route, the Kappa Kappa track, was attempted by the Americans, but proved much more difficult than reconnaissance

reports had originally indicated. As a result, 250 men of the 126th Infantry's 2nd Battalion reached their destination weak and unfit to fight.<sup>15</sup> Transport over land was inefficient and costly. To seize Buna would require a network of airfields and secure ports to supply and sustain the forces.

The air component of the logistic effort was critical from the first stages of the Allied offensive on Papua. Before areas were located where the terrain was dry and level enough to establish suitable airfields, over 166 tons of supplies were airdropped to the troops crossing the Owen Stanley mountains.<sup>16</sup> By mid November most of the airfields constructed in support of the Buna Operation and the Allied drive up the east coast of Papua were completed. With the Allied offensive planned for 19 November, and Allied sea transport significantly damaged by the Japanese, the airfields proved crucial to success. The entire 128th Infantry was flown from Australia to Wanigela, the first time that the United States had conducted such a large-scale troop transport by air.<sup>17</sup> The majority of the other Buna forces were flown to airfields at Dobodura or Popondetta, and marched the final 10 miles into Buna.(fig.4) Under the aggressive leadership of Major General Kenney, Commander Allied Air Forces SWPAC, every available transport was used, bringing in over 2,450 tons of supplies, including artillery, tractors, and a complete field hospital.<sup>18</sup>

In spite of the significant advantage realized by the air supply line, sea transport still accounted for a significant

portion of all supplies brought into Papua. (fig. 5) The shipping problem was compounded by shortages of all types of ocean going vessels supporting the SWPAC theater--from amphibious ships to barges--as well as inadequate port facilities on Papua.<sup>19</sup> Most of the vessels that were available were unable to navigate the reefs along the Papuan coastline. Once again, the Allies improvised and relied on host nation support to get supplies to the troops. Vessels were purchased or chartered from Australian civilians and many were constructed in Australia or New Zealand.<sup>20</sup> For safety of navigation, most seaborne supplies were transferred to progressively smaller vessels. Upon approaching the final delivery point and under cover of darkness, supplies were transferred to native outrigger canoes and brought ashore.<sup>21</sup> Heat and humidity caused considerable deterioration of supplies awaiting transport and refrigeration proved a constant problem. Once the supplies did finally arrive on shore, Papuan natives carried them the last few miles to the front lines.

Even with all available means of transportation being used to support the Buna operation, problems of prioritizing and time-phasing persisted. A major contributing factor to frequently inadequate logistic support was that the unique nature of the SWPAC campaign was not taken into consideration at the higher levels. Anticipated requirements from the main sources of supply in CONUS were not calculated for each theater, but determined from an average of all overseas theaters.<sup>22</sup> The resultant oversupply of some items and undersupply of others only

complicated logistics problems within the theater of operations. With a majority of requisitions from the front lines being marked "urgent", it was up to the quartermasters at Port Moresby and other key supply depots to assign priorities, according to their best estimate. This failed to resolve the issue. Ammunition supply was one critical area in which system responsiveness was sorely lacking. By the close of December, the Australian 1st Mountain Battery eventually ran out of ammunition and ceased to participate in the operation.<sup>23</sup>

#### *Infrastructure and Sustainment*

The Buna Operation is a classic example of what may be required to establish operations in an immature theater of operations. This area of hazardous terrain and coastline, with nonexistent roads, few harbors and unsuitable landing fields necessitated a monumental effort by the Allies and the Papuan natives to establish an infrastructure from which to launch and sustain the operation. The engineers and construction teams, with much native assistance, successfully kept trails passable, and constructed ports and airstrips. Upon discovery that the airstrip at Buna was often under water and unusable, members of the 128th Infantry and 297 natives were brought in to construct the airstrip at Dobodura, ten miles south of Buna. This marked the "first time in all history road-making techniques were given wings", with transports landing at the four temporary airstrips bringing in troops and heavy equipment to complete the runways.<sup>24</sup>

Similarly, extensive work by the Army Corps of Engineers was required to construct ports where none existed. Their efforts at areas such as Milne Bay allowed the receipt of 2,500 ship-tons of supplies daily to support the operation.<sup>25</sup>

Sustainment of the Buna Operation was possible due to the multiplicity of means used to bring in troops and supplies. When seagoing transports were severely cut back by Japanese attack, the air effort filled in the gap. With fighting forces overtasked and their numbers diminished by illness, the natives assisted with construction and carrying supplies to forward operating areas. Yet in spite of these efforts, the problem of sustainment was never fully solved. The enemy, the environment and frequently the shortcomings of the logistic system itself resulted in troops running short of food and ammunition.

#### IV. CONCLUSIONS

As the first in a series of islands in MacArthur's move to the north in pursuit of the Japanese, many of the hard lessons learned during the Buna Operation served as a logistical guideline for the Allied advance in the SWPAC. The logistic network became a primary focus and a significant factor in allowing the Allies to retain the initiative. Although far from perfect, the Allied logistic system succeeded where the Japanese system failed. As expressed by a member of the Japanese Buna force, "We lost at Buna because we could not retain air superiority, because we could not supply our troops, and because

our navy and air force could not disrupt the enemy supply line."<sup>26</sup> By keeping the Allied logistic network flexible, economically using limited assets and improvising when necessary, the Allies on Papua proved that even the most unlikely area could be made to support a military operation. Buna also served as an impetus for the expanding role of logistical air support. Air transport had proven its worth in rapidly moving large quantities of troops and heavy equipment. Finally, the realization that the complexity of the logistic problem required the participation of all service components marked the beginning of "joint" logistic support.

#### **V. LESSONS LEARNED**

What value can a logistics operation which occurred over 50 years ago on an island in the SWPAC provide for the operational commander or logistician today? The Buna Operation is an outstanding example of how a substantial logistic operation can be developed in an immature, hostile theater. Even in these days of advanced technology, we must not be lulled into thinking that the fight will always occur in areas with a pre-established logistic infrastructure. The nature of the environment may mean that a technological advantage will not always translate into an operational advantage. Constantly seeking creative solutions and avoiding the pitfall of "we've always done it that way" can substantially increase the capacity of limited resources at hand. Clearly, host nation support is critical when establishing a

logistic network on foreign soil. In addition to providing technical assistance and equipment in an area with limited military resources, host nationals are indispensable in providing valuable information about the local area, including the populace and terrain. Finally, although logistic support requires advanced planning, it must be *tailored to the area of operations*. Finally, an effective logistic plan *must not be static*. Once the fighting starts and the unexpected happens, the plan must be *responsive to the needs of the commander on the scene*.

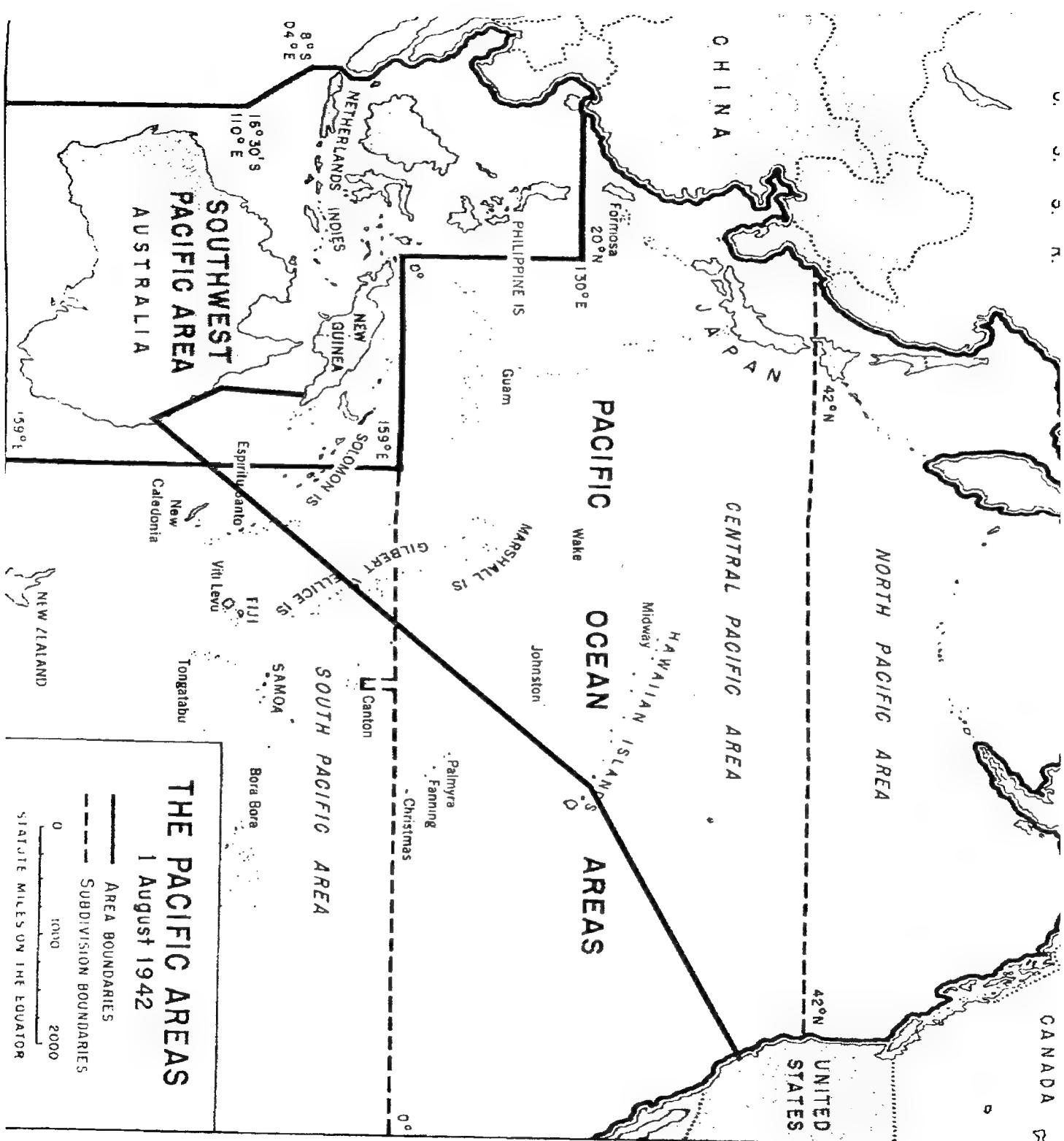


Fig. 1: CONUS New Guinea Supply Line

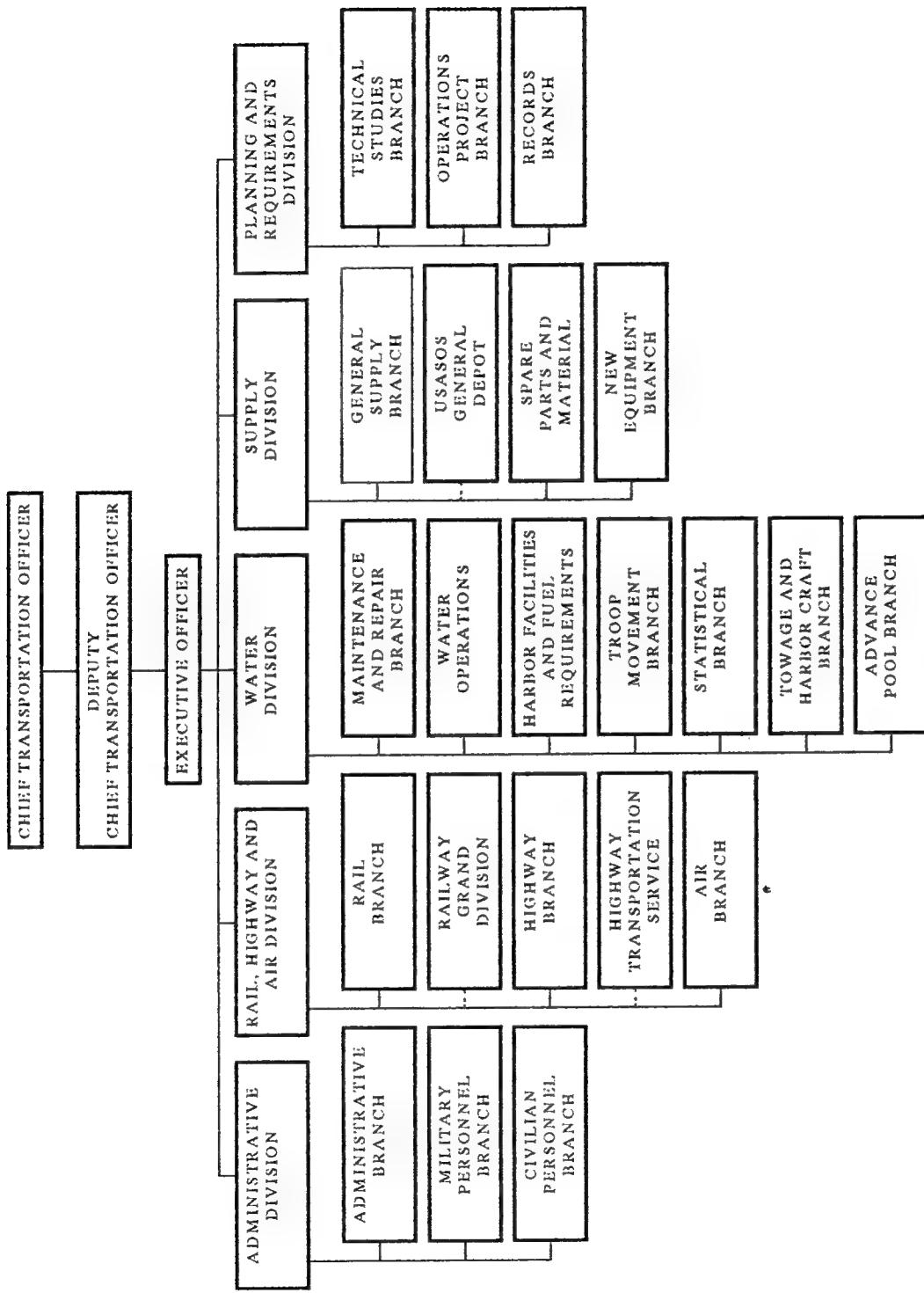


FIG. 2: USASOS ORGANIZATION

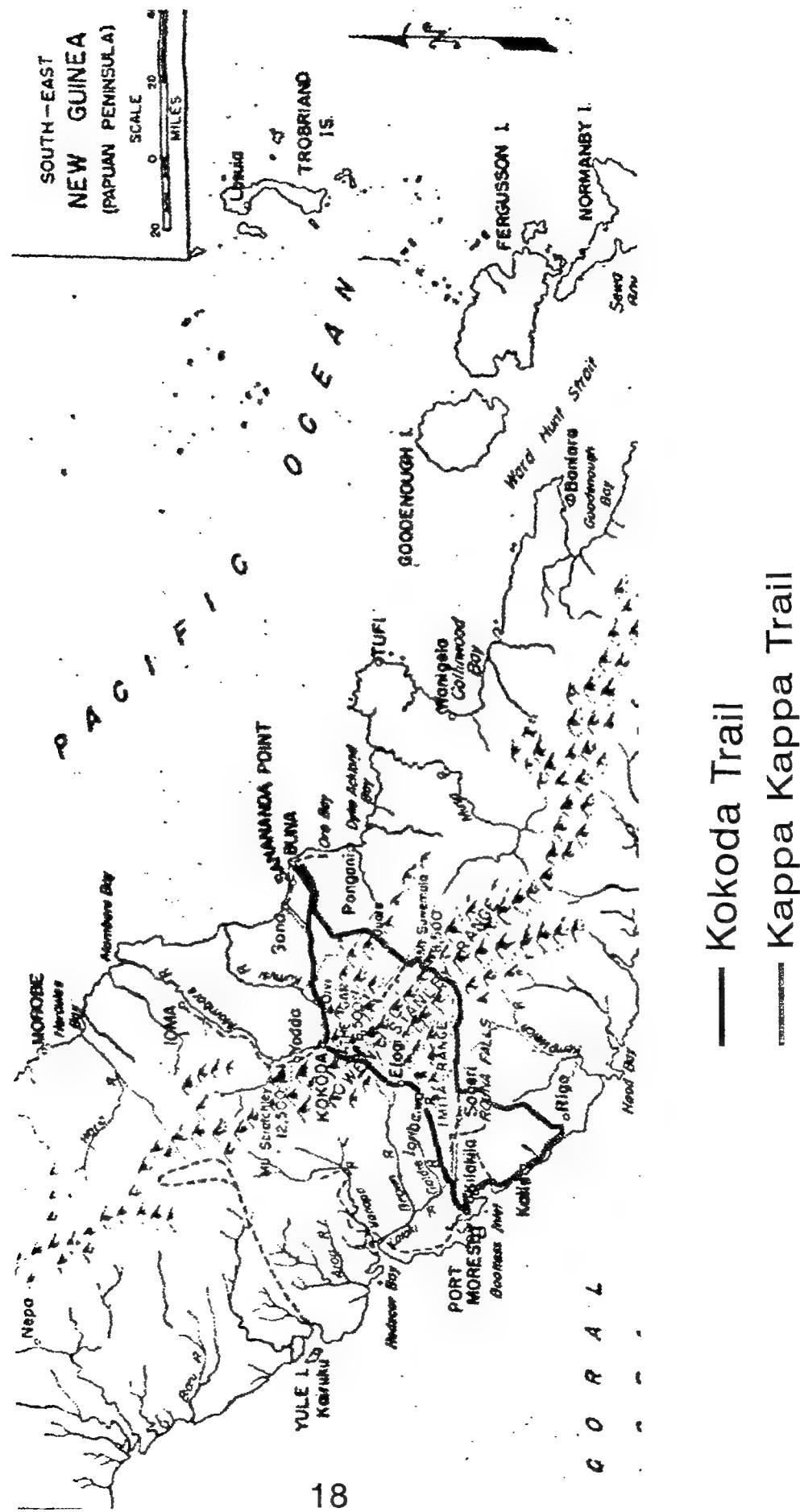


Fig. 3: Land Lines of Communication

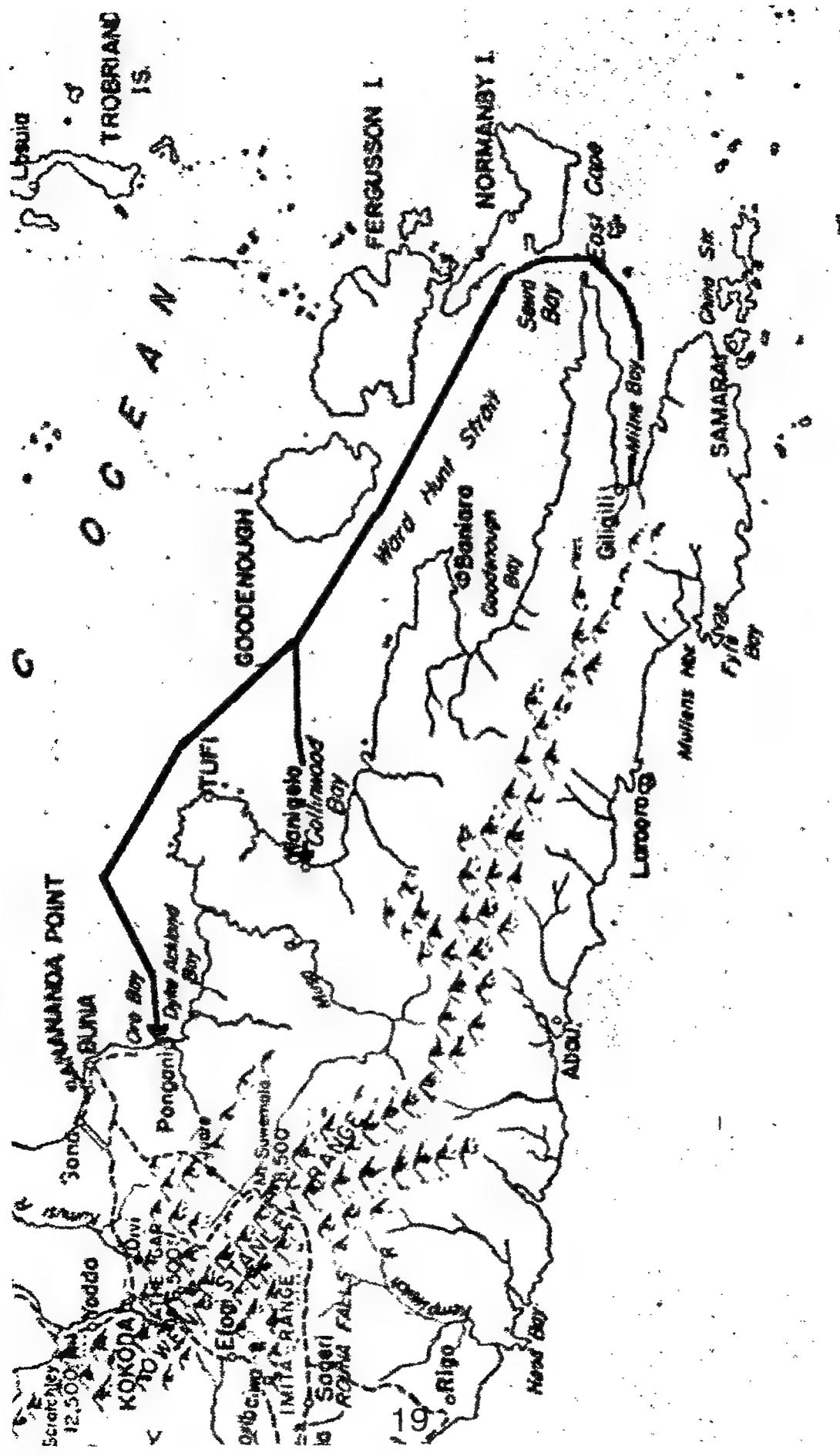


Fig. 4: Sea Lines of Communication

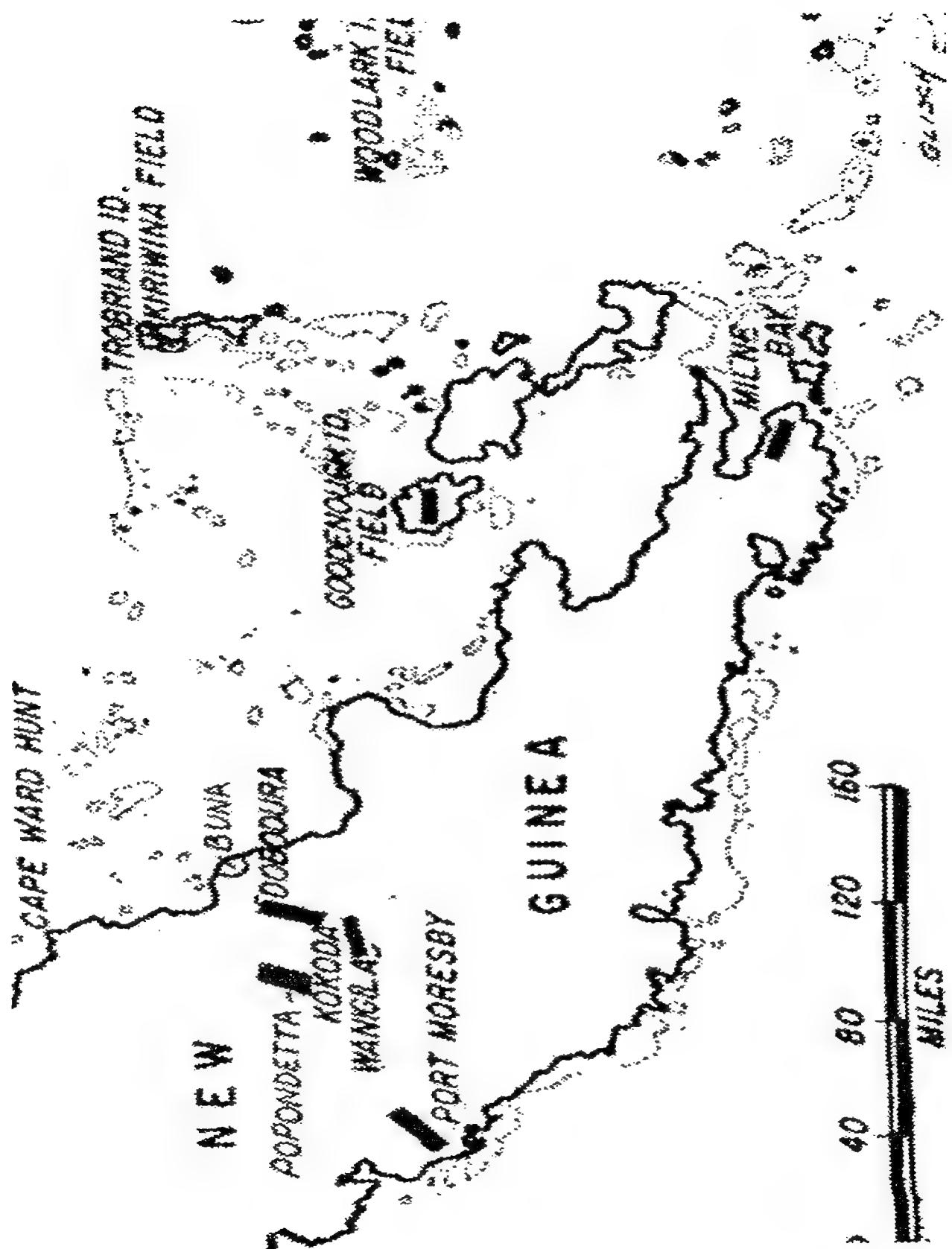


Fig. 5: New Guinea Airfields

Notes

1. Nathan J. Power, LCOL, USA, "Force Projection- Logistics," Military Review, July 1993, p. 45.
2. George H. Johnston, The Toughest Fighting in the World (New York: Duell, Sloan and Pearce, 1943), p. 178.
3. U.S. Joint Staff, Doctrine For Logistic Support of Joint Operations. Joint Pub. 4-0 (Washington: 1992), p. II-2.
4. Ibid., p. IV-2.
5. Johnston, p. 134.
6. Joseph Bykofsky and Harold Larson, The United States Army in World War II: The Technical Services Vol. III: The Transportation Corps: Operations Overseas. (Washington: U.S. Government Printing Office, 1957), p. 429.
7. Ibid., p. 435.
8. Ibid., p. 428.
9. Ibid., p. 460.
10. American Forces In Action: Vol. 2. Papuan Campaign: The Buna-Sanananda Operation. (Washington: War Department. Military Intelligence Division, 1944), p. 12.
11. Ibid., p. 12.
12. Coarse, broad-leaved grass with razor-sharp edges; grows to six feet in height.
13. American Forces In Action: Vol. 2, p. 20.
14. Johnston, p. 134.
15. Lida Mayo, Bloody Buna (New York: Doubleday & Company, 1974), p. 74.
16. American Forces In Action, Vol. 2, p. 20.
17. Ibid., p. 20.
18. Ibid., p. 20; Johnston, p. 178.
19. Robert W. Coakley and Richard M. Leighton, United States Army in World War II: The War Department: Global Logistics and

Strategy, 1943-1945 (Washington: U.S. Government Printing Office, 1968), p. 809.

20. Bykofsky and Larson, p. 452.
21. American Forces In Action: Vol. 2, p. 22.
22. Coakley and Leighton, p. 799.
23. American Forces In Action: Vol. 2, p. 32.
24. Ibid., p. 100.
25. Bykofsky and Larson, p. 459.
26. Samuel Milner, The United States Army in World War II: The War in the Pacific, Vol. VII: Victory in Papua (Washington: Office of the Chief of Military History, Department of the Army, 1957) p. 374.

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